Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 21, 73, 74 and 101	)	WT Docket 03-66
Commission's Rules to Facilitate the Provision of	)	RM No. 11614
Fixed and Mobile Broadband Access, Educational	)	
and Other Advance Services in the 2150–2162	)	
and 2500–2690 MHz Bands	)	

Comments of EIBASS

Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (EIBASS) hereby respectfully submits its comments in the above-captioned WT Docket 03-66 Fourth Further Notice of Proposed Rulemaking (Fourth FNPRM) relating to relaxed out-of-band-emissions (OOBE) for Part 27 Broadband Radio Service (BRS) and Educational Broadband Service (EBS) stations.

I. EIBASS Continues To Object To the Proposed Relaxation of the BRS OOBE Requirements Because It Could Result in Greater Interference to Both TV BAS Channel A10 and Channel A9 Stations

1. First, EIBASS notes that this rulemaking is mislabeled: It is not the 2,500–2,690 MHz Band, but rather the 2,496–2,690 MHz Band. This is because BRS Channel 1, at 2,496–2,502 MHz, extends 4 MHz into the spectrum occupied by indefinitely grandfathered, co-primary, TV Broadcast Auxiliary Services (BAS) Channel A10 stations operating at 2,483.5–2,500 MHz. Perhaps from a legal standpoint it made sense to find replacement spectrum for former MDS Channel 1 stations by creating a 4 MHz-overlap with TV BAS Channel A10 stations, but from an engineering standpoint the allotment made no sense, and was not what the WCAI[1]/CTN[2]/NEBSA[3] industry group[4] had proposed in its October 7, 2002, white paper, which became RM-10586, and then WT Docket 03-66, finally resulting in the current BRS/EBS band plan; see the attached Figure 1.

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1 Wireless Communications Association International, formerly the Wireless Cable Association.
2 Catholic Television Network. CTN represents scores of EBS licensees nationwide.
3 National EBS Association; formerly the National ITFS Association (NIA).
4 This group was known as the WCA MDS/ITFS Technical Rules Rewrite Task Group, or TRRG.

2. In its Petition for Rulemaking, RM-11614, the WCAI proposed to amend Section 27.53(m) of the FCC rules by allowing a doubling of the amount of OOBE, from a suppression of at least $43 + 10\log_{10}(P)$ dB at the channel edges, to a suppression of just $40 + 10\log_{10}(P)$ dB, where P is unmodulated carrier power in watts. Beyond 5 MHz below the lower channel edge, and beyond 5 MHz above the upper channel edge, the OOBE suppression requirement would return to either $43 + 10\log_{10}(P)$ dB, or to $55 + 10\log_{10}(P)$ dB at ±X MHz removed from the channel edges, where X is the greater of 6 MHz or the channel bandwidth X.

3. EIBASS objected to the proposed relaxation in the OOBE limits for Part 27 BRS/EBS stations because it could result in increased interference from BRS Channel 1 operations at 2,496–2,502 MHz not only to indefinitely-grandfathered TV Broadcast Auxiliary Services (BAS) Channel A10 stations at 2,483.5–2,500 MHz,[5] but also to non-grandfathered TV BAS Channel A9 stations at 2,467–2,483.4 MHz. As shown by the attached Figure 2, for an aggregated, twenty-MHz wide BRS handset with its lower channel edge at the BRS Channel 1 lower channel edge, the increased interference could extend all the way down to 2,476 MHz; this would completely encompass TV BAS Channel A10, and overlap a significant portion of TV BAS Channel A9.

4. As newcomer stations, BRS1 licensees are obligated to protect all earlier-in-time, co-primary, TV BAS Channel A10 and A9 operations.[6] Because the majority of these stations are mobile TV Pickup stations, this means that BRS1 operations involving mobile/handheld devices (MHDs) and analog TV BAS Channel A10 TV Pickup operations cannot co-exist in the same market, since there is a 4 MHz *co-channel* overlap, and both involve operations at not-known-advance locations at not-known-in-advance times. Increased interference to TV BAS Channel A9 operations could also be caused, although probably not the "spectrum train wreck" situation for BRS1 and TV BAS Channel A10.

5. As previously documented by SBE, and as recently re-documented by MSTV/NAB in its October 25, 2010, WT Docket 10-153 filing,[7] a handheld 4G transmitter could be in close

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[5] The ULS shows 64 TV BAS Channel A10 licenses, of which 62 are TV Pickup stations, one is a studio-to-transmitter link (STL) station, and one is a TV Translator Relay station.

[6] The principle that, between co-primary users, the newcomer user must protect the earlier-in-time user was spelled out at Paragraphs 53 and 58 of the February 7, 2002, ET Docket 98-142 R&O, and was re-affirmed at Paragraph 21 of the April 2, 2003, ET Docket 98-142 MO&O.

[7] At page 4: "A shorthaul use would be, for example, a transmission from a mobile "backpack camera" inside a government office building to the ENG truck located on a nearby street. And at page 9, footnote 9: "And there is risk that the backhaul site could cause interference to the [ENG] truck (which may be receiving a shorthaul communication from a backpack camera, for example)."

proximity to an omnidirectional receiving antenna on the roof of an electronic news gathering (ENG) van, used to receive the signal from a low-power (250 mW or less[8]) transmitter often installed on the back of a man pack camera. For example, the man pack camera could be transmitting on TV BAS Channel A9 to relay the feed to an ENG truck within a few hundred feet. That incoming signal would then be retransmitted using the ENG truck's mast-mounted 2 GHz transmitter, to an available fixed ENG-RO site. The signal would then typically be relayed back to the TV station's studio by a 13 GHz TV Inter City Relay (ICR) link. So it is entirely possible that one 4G handheld device being operated next to the ENG van's receiving antenna could cause adjacent-channel interference that would not exist under the current OOBE limits.

6. Another scenario would be a 4G handset being operated from an observation platform near the top of a high-rise building, that also has a fixed ENG-RO site. These sites typically use receivers with noise thresholds of -95 dBm, often with an antenna mounted low-noise amplifier to maintain the system's noise figure. Again, even a single nearby BRS Channel 1 handheld device could be an interference threat if operating with the proposed relaxed OOBE limits.

7. In its various comments to the IB Docket 02-364 rulemaking, the Society of Broadcast Engineers, Inc. (SBE) proposed that the 2.5 GHz TV BAS band be converted to digital and TV BAS Channels A8, A9 and A10 be re-packed to 12 MHz wide digital channels, starting at 2,450 MHz; see the attached Figure 3. Doing so would have not only eliminated the conflict with BRS Channel 1, but also with then proposed, and now adopted, Mobile Satellite Services (MSS) Ancillary Terrestrial Component (ATC) stations at 2,487.5–2,493 MHz. As an interim solution with respect to BRS1 operations (but not MSS ATC operations), grandfathered TV BAS Channel A10 stations could convert to digital operations and shift their center frequency downward by 2.25 MHz, to thus no longer be co-channel with BRS Channel 1 operations. However, even if grandfathered A10 stations were to do so, the proposed relaxed OOBE limits for BRS operations could increase the interference into such digital A10d1 operations, along with future A10d2 operations, if the SBE band plan is adopted by the Commission.

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[8] Because Section 74.655(b) of the FCC rules exempts TV Pickup transmitters with transmitter powers of 250 mW or less from the equipment Certification or Verification requirements, manpack camera transmitters generally do not exceed this power level. Additionally, battery power drain is also an issue for a portable transmitter.

8. EIBASS is therefore disappointed that after multiple filings by both SBE and EIBASS,[9] WCAI could file a petition for rulemaking that doesn't even acknowledge the existence of 2.5 GHz Part 74 TV BAS operations. Because of the EIBASS December 1, 2010, filing to RM-11614, though, the Fourth FNPRM acknowledges the interference threat of relaxed OOBE requirements to 2.5 GHz TV BAS operations.

9. In its December 16, 2010, reply comments to RM-11614, WCAI argued that EIBASS filed on the wrong proceeding, that EIBASS didn't prove that there would be interference, and that EIBASS was trying to re-argue previously decided issues. WCAI is wrong on all counts. The issue in RM-11614 was whether BRS/EBS stations should be allowed to radiate even greater OOBE than previously allowed, so the EIBASS filing to RM-11614 was the correct proceeding. While no party can "prove" interference before a proposed modified service exists, the EIBASS comments provided credible reasons and technical documentation why increased interference could be expected. EIBASS notes that on May 27, 2011, it filed a Petition for Reconsideration to the April 6, 2011, ET Docket 10-142 "MSS Flexibility" Report & Order, documenting a case of actual interference to grandfathered TV BAS Channel A10 in Chicago. While that interference involved S-Band Mobile Satellite Services (MSS) Ancillary Terrestrial Component (ATC) operations, and not a BRS Channel 1 station, it nevertheless documented that EIBASS had not been "crying wolf" regarding interference to TV BAS Channel A10 stations by MSS ATC operations. Finally, while the EIBASS comments to RM-11614 did include the 2004 SBE-proposed re-farming of the 2.5 GHz TV BAS band, that issue is still pending; *i.e*., it has not yet been "decided," by being formally dismissed by the Commission.

10. Here is what WCAI said in its written April 27, 2004, WT Docket 03-66 *ex parte* comments regarding the OOBE issue:

> WCA, NIA and CTN recommended that MDS/ITFS customer equipment be required to be designed such that any emission is attenuated below the transmitter power (Pwatts) by at least 43 + 10 log (Pwatts) dB from the edge of the frequency block to 5.5 MHz from that edge, and thereafter is attenuated by at least 55 + 10 log (Pwatts) dB, unless otherwise agreed by the affected licensee.29 This spectral mask is somewhat more stringent than that imposed on broadband PCS, the lower

[9] See SBE filings to General Docket 82-334 (Policy for Certain Bands Between 0.947 and 40 GHz); ET Docket 94-32 (Return of Below-5 GHz Federal Spectrum to the Private Radio Sector); ET Docket 90-314 (Personal Communications Services); ET Docket 92-9 (Redevelopment of Spectrum To Encourage Innovative Use of New Telecommunications Technologies); IRAC Docket 30063 (to codify the long-standing informal sharing of 2 GHz TV BAS frequencies by NASA); ET Docket 95-18 (MSS); IB Docket 01-185 (MSS ATC); IB Docket 02-364 (MSS ATC); ET Docket 00-258 (3G Services Below 3 GHz); WT Docket 02-55 (Improving Public Safety Communications in the 800 MHz Band); and even WT Docket 03-66 (BRS/EBS Stations). See EIBASS filings on December 1, 2009 (IB Docket 02-364. MSS ATC) and on September 15, 2010 (ET Docket 10-142, MSS Flexibility).

> 700 MHz band, WCS, and the new WCS services established in the *27 MHz Proceeding*.30 While operators pressed for an even more restrictive mask during the deliberative process, in the end the Technical Task Group was required to balance the desire for a more restrictive mask with the limits of practical filter technology. WCA's Technical Task Group believes that the proposed mask, while more restrictive than that imposed on similar services to facilitate flexible us balance – it is neither so stringent that it cannot be achieved without undue cost nor is it so loose as to jeopardize flexible service offerings.

Thus, EIBASS submits that it is WCAI that got things wrong, and has to wonder if its engineering subcommittee group was even involved in the RM-11614 proposal.

11. WCAI apparently still doesn't understand that simply counting the number of TV Pickup licenses in the ULS showing TV BAS Channel A10 grandfather rights is not a valid metric, because a single TV Pickup station authorizes and unlimited number of transmitters by that licensee.[10] And while the larger market TV stations with grandfathered A10 licenses do not have unlimited transmitters, it is not uncommon for a major market TV station to have dozens of electronic news gathering (ENG) platforms: Vehicles, portables, and airborne (*i.e.*, news helicopters). It's as if EIBASS were to argue that since there are only 487 Basic Trading Areas (BTAs) in the U.S., and since commercial mobile radio service (CMRS) licenses are only issued for BTAs rather than individual cell sites (unless FAA approval is needed, but that is rarely the case for a CMRS pole or tower), there must not be many cell phones or wireless devices in use.

II. The Commission Needs To Adopt the SBE-Proposed 2.5 GHz TV BAS Band Plan

12. EIBASS is at a loss to understand why the Commission has not adopted the 2.5 GHz TV BAS band plan proposed by SBE in 2004. Had the Commission done so, the refarming of the 2.5 GHz band could have been accomplished at little incremental cost to MSS ATC entities and BRS entities. With the completion of the 2 GHz TV BAS band from analog to digital on July 15, 2010, though, this opportunity has now passed. Pursuant to the policy established by the Commission in the ET Docket 92-9 "Emerging Technologies" rulemaking, the newcomer user(s) must pay all reasonable and prudent relocation costs of the incumbent user(s), in this case all 2.5 GHz TV BAS licensees. That cost to the displacing newcomer MSS ATC and BRS operators will now be substantially higher. However, that delay is not due to any inaction on broadcasters' part. Until such refarming, EIBASS asks the Commission to place a restriction that the

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[10] See the July 29, 2005, FCC Public Notice, DA 05-2223, *Wireless Telecommunications Bureau (WTB) and Media Bureau Announce Licensing Procedures to Facilitate the Transition of BAS, CARS, and LTTS Licenses to the 2025–2110 MHz Band and WTB Addresses SBE Petition for Declaratory Ruling*, at Page 5, last paragraph.

requested relaxed OOBE limits not apply to any BRS operation that is within 14.5 MHz (*i.e.*, 20 MHz minus 5.5 MHz) of the BRS Channel 1 lower channel edge, until such time as TV BAS Channels A8, A9 and A10 are converted to TV BAS Channels A8d, A9d, and A10d2.

III. Summary

13. The WCAI Petition for Rulemaking that became RM-11614 did not even mention grandfathered TV BAS A10 operations, or TV BAS Channel A9 operations. The WCAI proposal would result in increased interference to 2.5 GHz TV BAS operations, and must be modified so that there is no increase in the allowable interference to the lower-adjacent band TV BAS operations. Further, deployment of BRS Channel 1 cannot go forward until grandfathered TV BAS Channel A10 operations are at least converted to digital and operate with an interim 2.25 MHz downward shift in the channel center frequency, to eliminate the "spectrum train wreck" co-channel overlap with BRS Channel 1. Under the Commission's Emerging Technologies policy, S-band MSS ATC and BRS operators are responsible for paying all reasonable and prudent costs associated with this refarming of the 2.5 GHz TV BAS band.

List of Figures

14. The following figures or exhibits have been prepared as a part of these RM-11614 comments:

1. Figure showing the prior ITFS channels, the WCAI/CTN/NEBSA band plan, and the as-adopted BRS/EBS band plan.

2. Figure showing increase in interference to 2.5 GHz TV BAS operations under the rule change proposed by WCAI.

3. SBE proposal to re-farm the 2.5 GHz TV BAS band, to eliminate conflicts with both BRS Channel 1 and MSS ATC operations.

Respectfully submitted,

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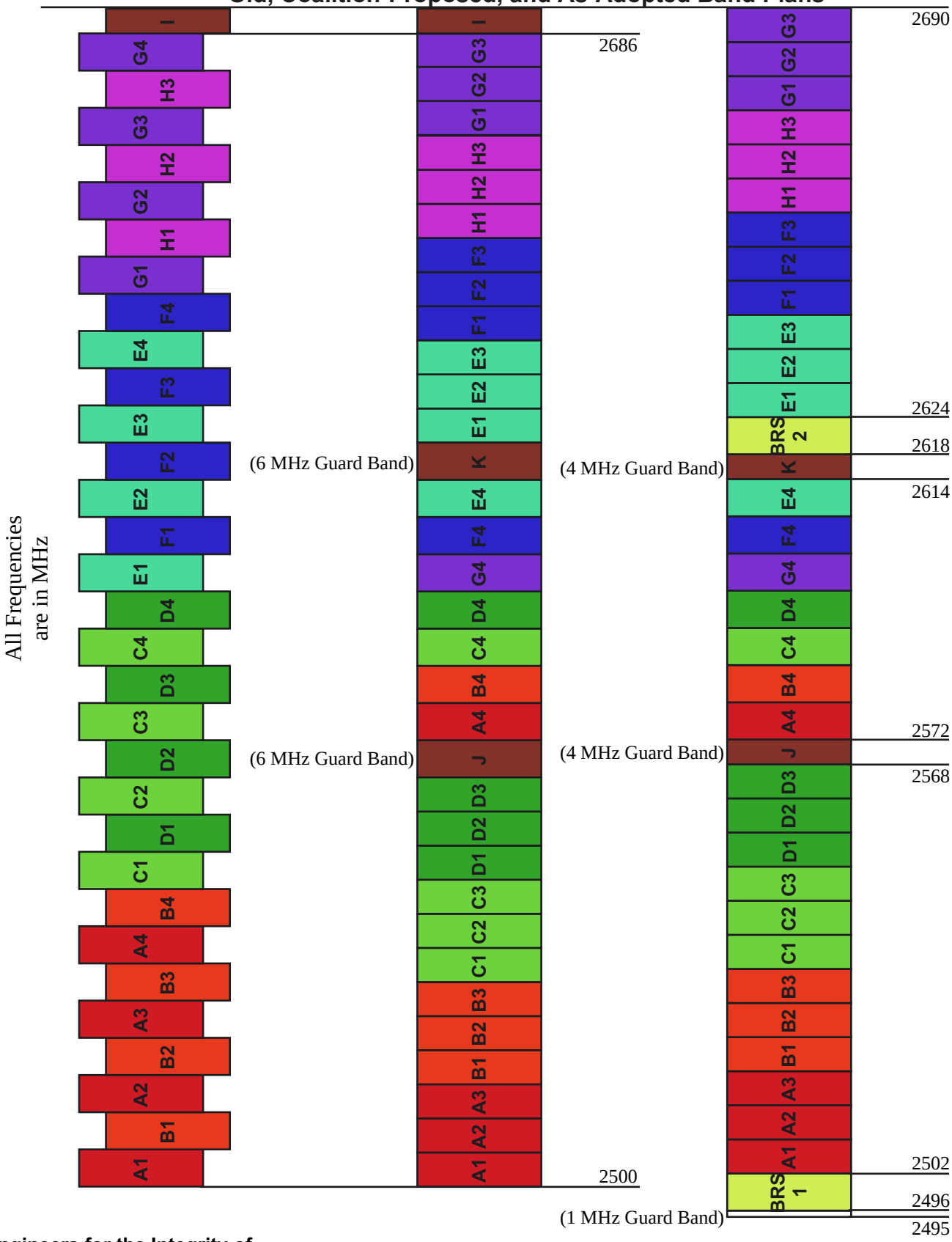
EIBASS Comments: WT 03-66 Fourth FNPRM
Relaxed OOBE Requirements for BRS/EBS Stations

Old, Coalition-Proposed, and As-Adopted Band Plans



Engineers for the Integrity of
Broadcast Auxiliary Services Spectrum

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Figure 1

EIBASS Comments: WT 03-66 Fourth FNPRM
Relaxed OOBE Requirements for BRS/EBS Stations

20 MHz Wide 4G Channel with Its Lower Edge at the Lower Edge of BRS Channel 1

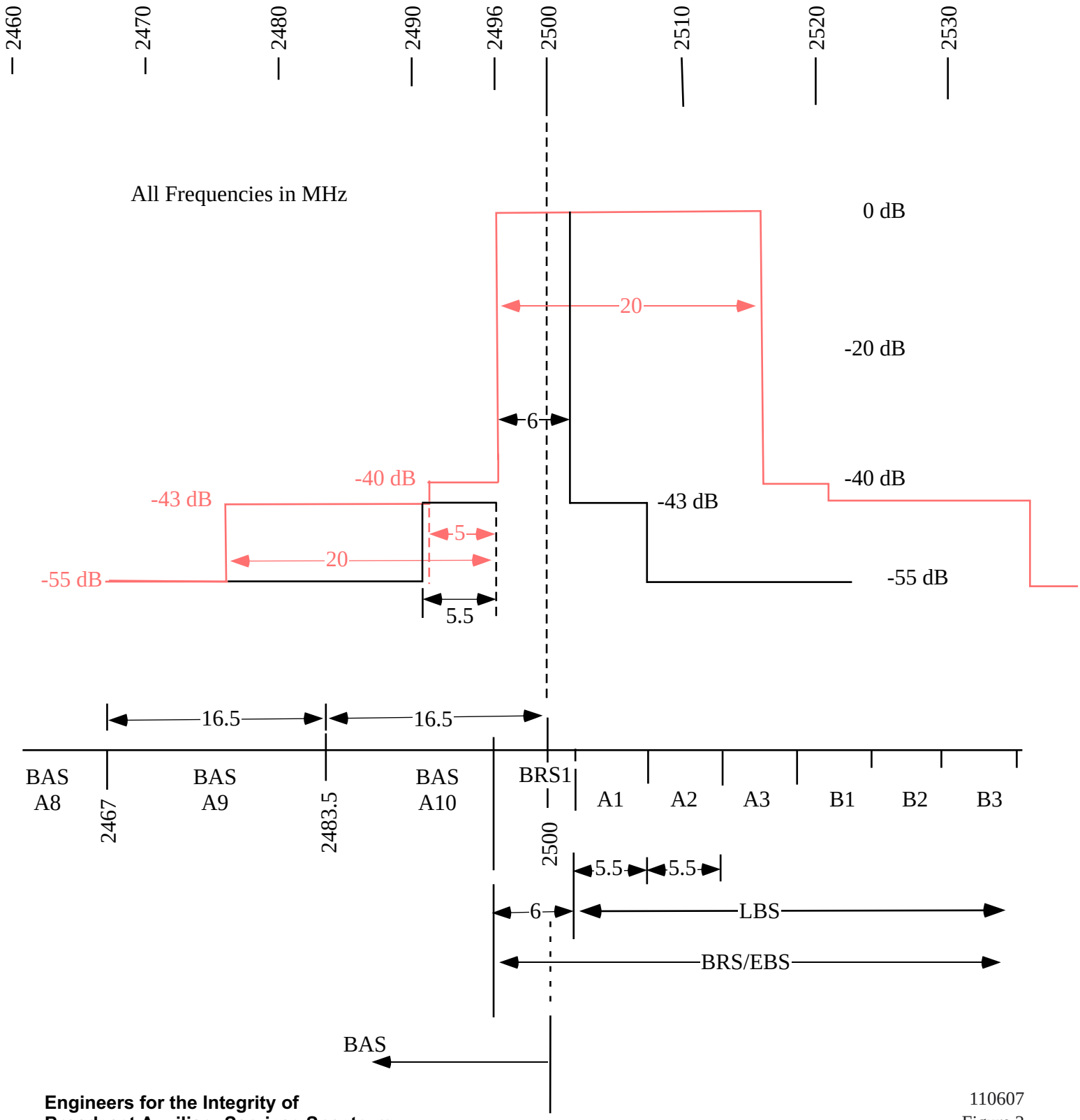

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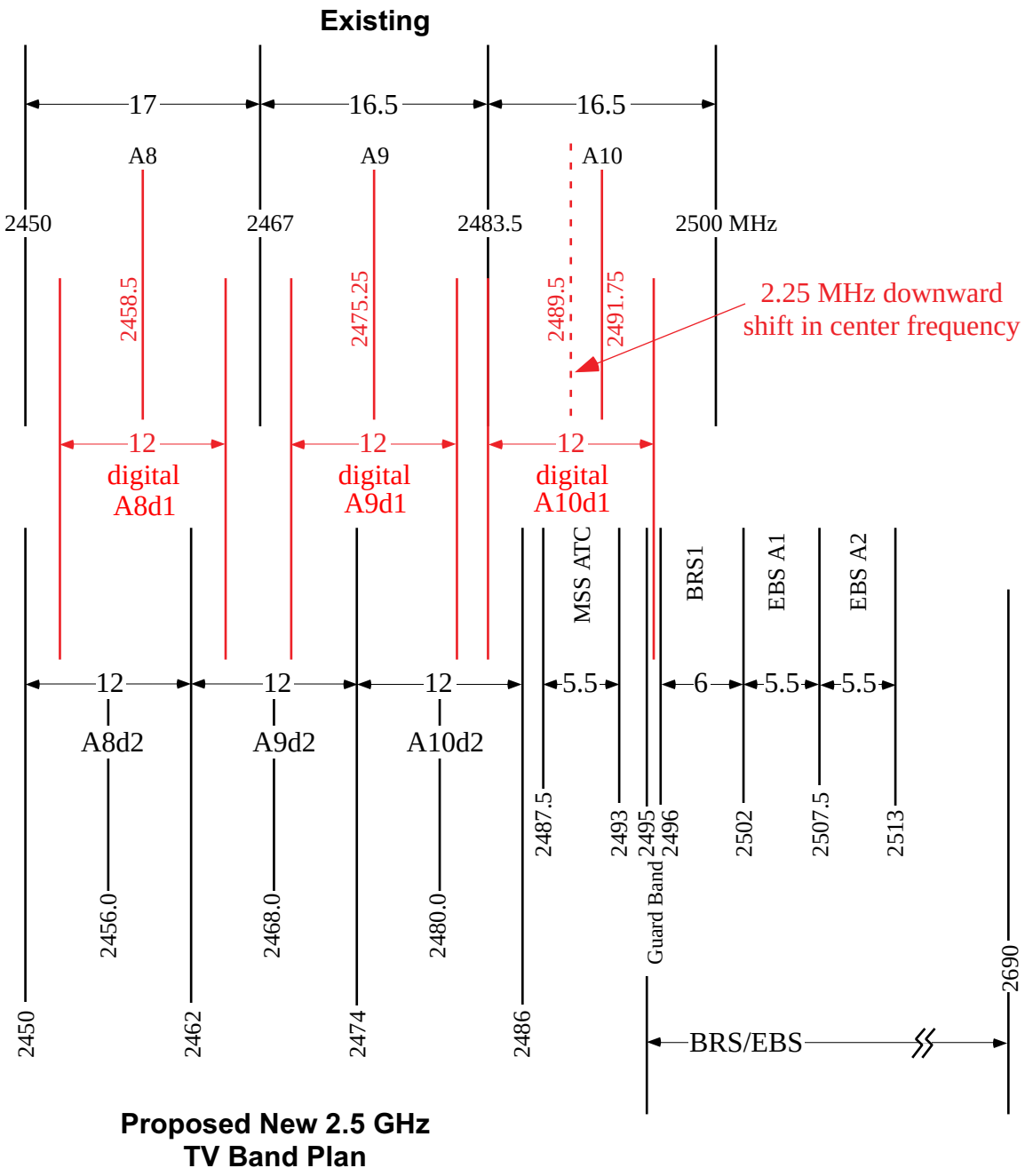
Figure 2

EIBASS Comments: WT 03-66 Fourth FNPRM
Relaxed OOBE Requirements for BRS/EBS Stations

SBE Proposed Refarming of the 2.5 GHz TV BAS Band
(from IB Docket 02-364, MSS ATC)



Proposed New 2.5 GHz
TV Band Plan

All frequencies and bandwidths are in MHz.